

WE CLAIM:

1. An antibody that specifically binds to a polypeptide having amino acid sequence SEQ ID NO: 2 or SEQ ID NO: 4.
2. An antibody that specifically binds the polypeptide of claim 1, wherein said antibody is a monoclonal antibody, or antigen-binding fragment thereof.
3. A pharmaceutical composition comprising an anti-LAX antibody specific for cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antibody specifically binds to a polypeptide having an amino acid sequence of SEQ ID. NO: 2 or SEQ ID NO: 4, or immunogenic fragment thereof.
4. The pharmaceutical composition of claim 3, wherein said antibody is a monoclonal anti-LAX antibody, or antibody fragment thereof.
5. The pharmaceutical composition of claim 3, wherein said antibody is labeled with a radioisotope.
6. The pharmaceutical composition of claim 3, wherein said antibody is labeled with a toxin.
7. The pharmaceutical composition of claim 3, wherein said antibody is administered in an amount effective to kill or inhibit the growth of cells that cause a disorder selected from the group consisting inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.
8. A method of targeting LAX protein on cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to target said LAX-expressing cells, wherein said composition is an anti-LAX antibody that specifically binds to

a polypeptide having an amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4, or an immunogenic fragment thereof.

9. A method of killing or inhibiting the growth of LAX-expressing cells that
5 cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and haematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition is an anti-LAX antibody that specifically binds to a polypeptide having an amino acid sequence of SEQ ID. NO: 2, or
10 SEQ ID NO: 4, or an immunogenic fragment thereof.

10. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers,
15 comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a LAX antigen.

11. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune
20 diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a nucleic acid of encoding LAX, or immunogenic fragment thereof, within a recombinant vector.

25 12. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises an antigen-
30 presenting cell comprising a nucleic acid encoding LAX, or immunogenic fragment thereof, within a recombinant vector.

13. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to
5 kill or inhibit the growth of said cells, wherein said composition comprises a small molecule that specifically binds to a polypeptide having an amino acid sequence of SEQ ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof.

14. A method of killing or inhibiting the growth of LAX-expressing cells that
10 cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a non-LAX polypeptide that specifically binds to a polypeptide having an amino acid sequence of SEQ
15 ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof.

15. The method according to any one of claims 8-14, wherein said cells are contacted with as second therapeutic agent.

20 16. The method according to any one of claims 8-14, wherein said anti-LAX antibody composition is administered in an amount effective to achieve a dosage range from about 0.1 to about 10 mg/kg body weight.

25 17. The method according to any one of claims 8-14 wherein said pharmaceutical composition is administered in a sterile preparation together with a pharmaceutically acceptable carrier.

18. A method of diagnosing a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection,
30 and hematopoietic-based cancers, comprising the steps of:
(a) detecting or measuring the expression of LAX protein on a cell; and
(b) comparing said expression to a standard indicative of said disease.

19. A method of diagnosing a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the steps of:

- 5 and
- (a) detecting or measuring the expression of LAX protein in said disease;
 - (b) comparing said expression to normal tissue.

20. The method according to claim 18 or 19, wherein said expression is LAX mRNA expression.

10

21. The method according to claim 18 or 19, wherein said expression is detected or measured using anti-LAX antibodies.

22. Use of an anti-LAX antibody in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antibody specifically binds to a polypeptide having the amino acid sequence of SEQ ID NO: 2, or immunogenic fragment thereof.

20

23. Use of a LAX antigen in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antigen elicits an immune response specific to said LAX-expressing cells.

25

24. Use of a nucleic acid encoding LAX or immunogenic fragment thereof, within a recombinant vector, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

30

25. Use of an antigen-presenting cell comprising a nucleic acid encoding LAX or immunogenic fragment thereof, within a recombinant vector, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases; allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

26. Use of a small molecule that specifically binds the LAX polypeptide having an amino acid sequence of SEQ ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

27. Use of a non-LAX polypeptide that specifically binds a LAX polypeptide having an amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4, or immunogenic fragment thereof, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.